

EVALUATION OF SOUTHERN PINE BEETLE INFESTATIONS  
ON THE KINGS MOUNTAIN NATIONAL MILITARY  
PARK, SOUTH CAROLINA

By

J. D. Ward and I. R. Ragenovich

INTRODUCTION

The Kings Mountain National Military Park, located between Charlotte, North Carolina and Spartanburg, South Carolina, is administered by the National Park Service to commemorate the battle fought at Kings Mountain during the American Revolution. An outbreak of southern pine beetle, *Dendroctonus frontalis* Zimm., was discovered in the Park during 1969 (Landgraf 1969). Since that time periodic surveys conducted by the U.S. Forest Service, Forest Insect and Disease Management, have monitored beetle activity there. These surveys have shown the beetle causing heavy pine mortality in the Park since 1969.

Most of the infestations have been left untreated except where adjoining private lands have been threatened by infestations from within the Park. This policy is in line with current management objectives for the Kings Mountain

National Military Park which state that a climax oak/hickory forest is the most desirable forest cover. The southern pine beetle has actually helped in the natural succession from sub-climax pine type to climax hardwood type on the Park.

This is a report of an evaluation of the southern pine beetle population in the Kings Mountain National Military Park conducted during April 1977.

#### METHODS

An aerial photographic survey of the 4,000 acre park was made from an Aero Commander aircraft using a Wild RC 10 camera with a 6-inch focal length lens at a scale of 1:5,000. Kodak Aerocolor negative film Type 2445 was used. Approximately 95% of the Park was photographed.

Photographs were interpreted at the Doraville Field Office to determine the number of beetle spots and the number of dead trees in the spots.

Seven spots were ground checked to determine the causal agent and to determine the status of southern pine beetle infestations.

## RESULTS

Results of the aerial evaluation revealed fifteen spots of red and fading pine trees concentrated primarily in the northwestern corner of the Park (Figure 1). A summary of the survey data showed an average of 65 red and fading pine trees per thousand acres of host type (Table 1). The dead pines had lost most of their needles indicating that they had probably been attacked during the summer and fall of 1976.

Southern pine beetle was the causal agent in all seven spots ground checked. Very few actively infested trees were observed. Those that were currently infested were recently attacked trees. Most of the attacks were "pitched out" or repelled by the flow of resin at the point of attack. This condition is common when the host is Virginia pine as it was in this case and when the population is declining.

No healthy southern pine beetle brood were found in any of the trees examined.

## CONCLUSIONS

The southern pine beetle populations is declining on the Kings Mountain National Military Park. While the beetle

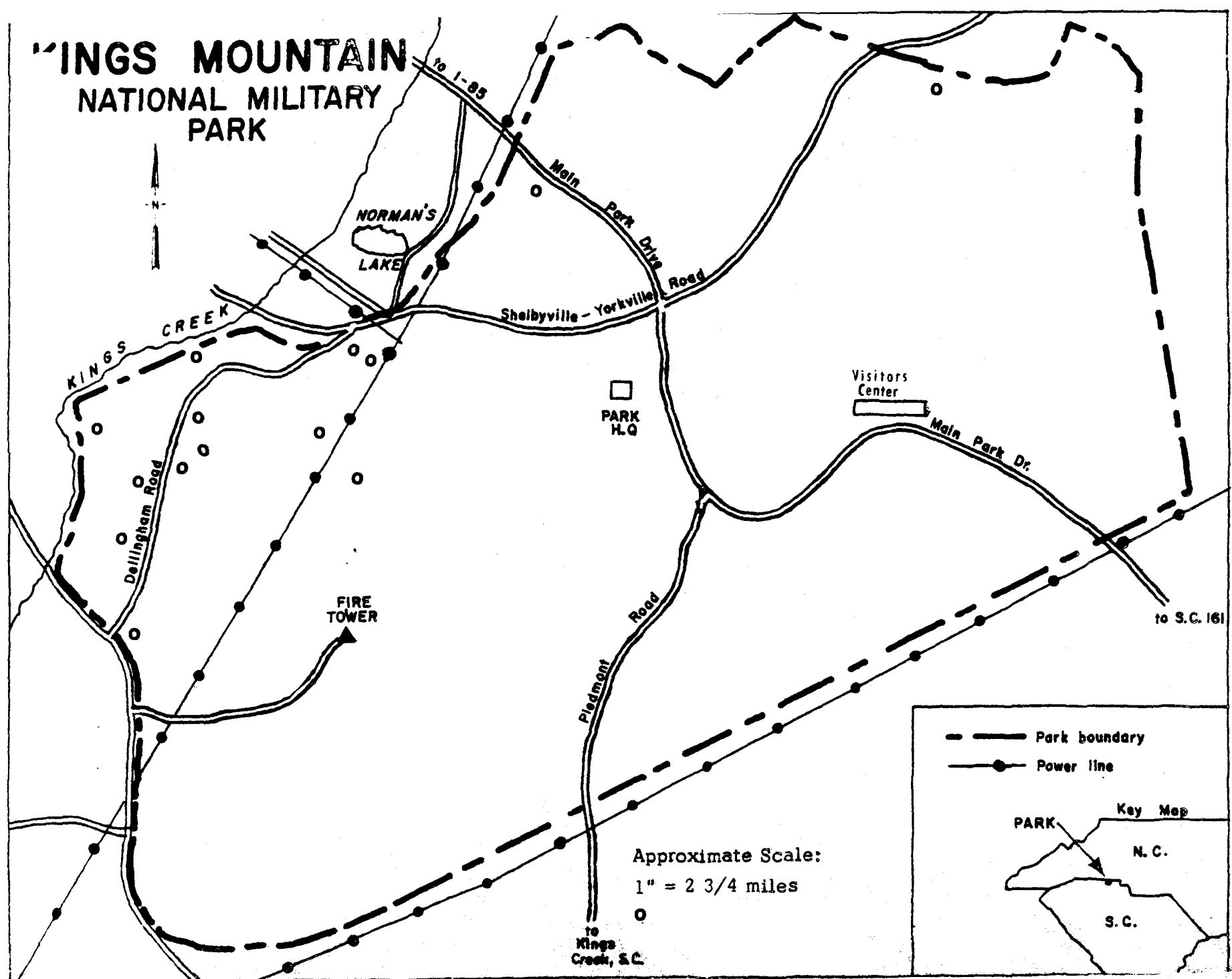


Figure 1. Location of Southern Pine Beetle Infestations on Kings Mountain National Military Park 1977.

Table 1. Summary of aerial and ground survey data, southern pine beetle evaluation, Kings Mountain National Military Park.

1. Results compiled from data collected during the aerial phase of the evaluation:

Survey type. . . . .	Aerial photographic
Date of aerial survey. . . . .	3/1/77
Percent survey . . . . .	95 %
Total acreage surveyed . . . . .	3,950
Susceptible host type acreage (pine type). . . . .	3,000
Total number of spots within the survey boundary . . . . .	15
Spots per M acre of host type. . . . .	5
Average spot size (trees). . . . .	15
Range of spot sizes (trees). . . . .	3-35
Reds and faders/M acres host type. . . . .	65

2. Results compiled from data collected during the ground and aerial phases of the evaluation:

Date of ground phase . . . . .	4/18/77
Infested trees per M acre of host type Park Service lands. . . . .	7
Total number of infested trees . . . . .	22
Total volume of infested trees . . . . .	1,250 BF
Total number of affected trees . . . . .	215
Total volume of affected trees . . . . .	12,255
Ratio of green infested to total red and fading trees. . . . .	1:8.5

Volume - BF - based on Scribner decimal C log rule. Cords converted to bd. ft. based on 500 bd. ft. per cord.

population is at a low level, it does not pose a threat to the Park or to pine stands on private lands adjoining it during 1977.

## REFERENCES

Landgraf, A.E. and J.L. Rauschenberger. 1969. Evaluation of southern pine beetle infestations, Kings Mountain National Military Park, South Carolina. USDA, USFS, SA, S&PF, Div. FPC, Asheville, N.C. Rpt. No. 70-1-29.